

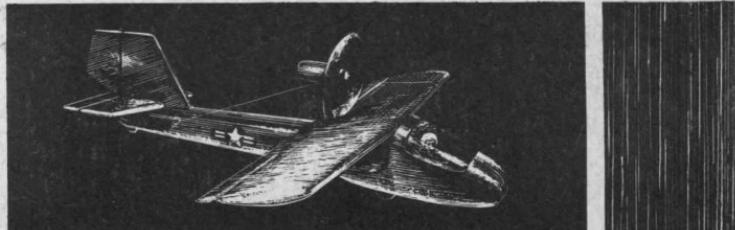
inflatoplanes

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GOODYEAR AIRCRAFT



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AIRCRAFT
CORPORATION
AKRON 15, OHIO



Goodyear Aircraft Corporation herein presents a summary of its two latest inflatable aircraft developments - the INFLATOPLANE* and the inflatable drone. In the past, inflated structures have been limited to lighter-than-air aircraft. The inception of the INFLATOPLANE, however, represents an apparent break with the past. It is this vehicle that materially confirms the first practical application of fabric components to heavier-than-air aircraft.

The INFLATOPLANE and, hence, the inflatable drone were born of a need for special-purpose aircraft that are light weight, have excellent packaging characteristics, are easily transported, and have a rapid package-to-airborne time. The purpose of this brochure then is to show, by means of photographs and artist's conceptions, some of the advantages and applications of inflatable aircraft.

* TM, Goodyear Aircraft Corporation, Akron, Ohio.



One Place Inflatoplane

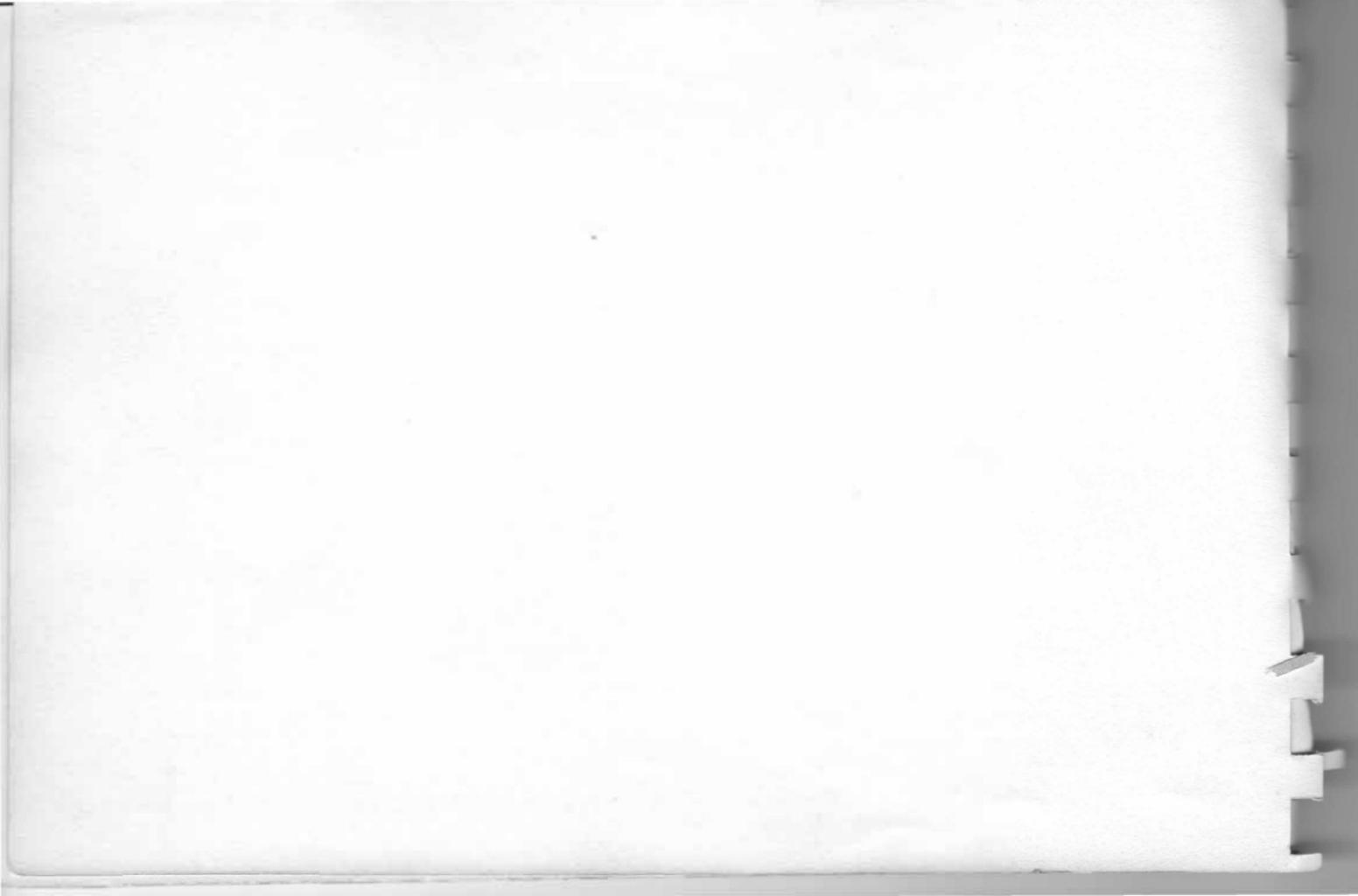


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This is the one-place INFLATOPLANE. It is 19.7-ft long, has a 22-ft wing span, and weighs 205 lb. A 42-hp engine assures optimum performance up to its maximum speed of 72 mph. Cruising at 60 mph on the fuel supplied by its 20-gal tank, the INFLATOPLANE has an in-flight-time capability of 6.5 hr and a service ceiling of 9000 ft. Air lost or valved in flight is resupplied by a small engine-driven compressor. Inflation pressures are maintained constant for each component part by an interconnecting air-line arrangement. (Normal inflation pressure is 7 psi.)

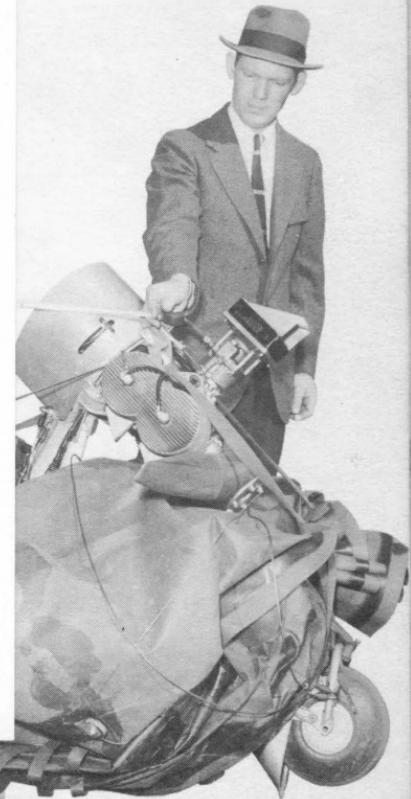


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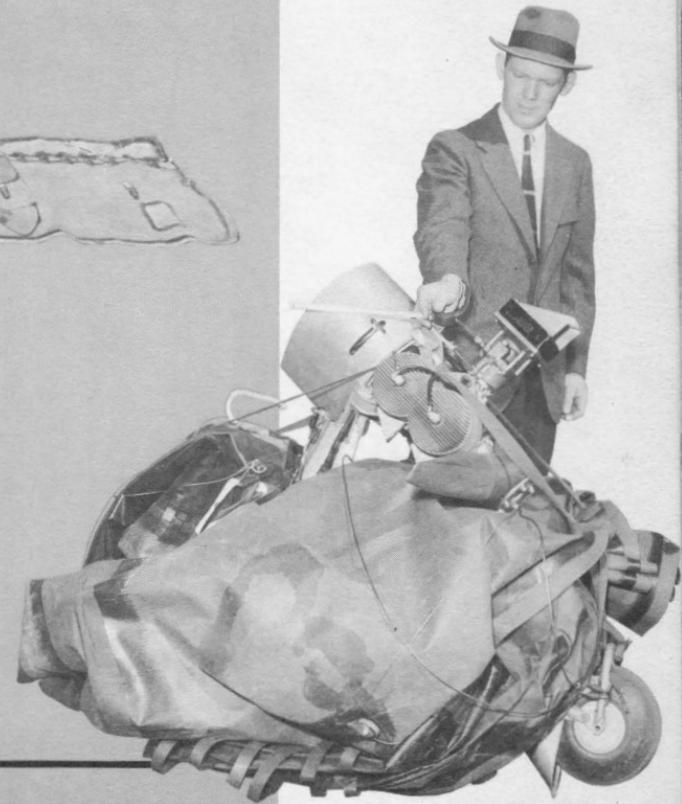
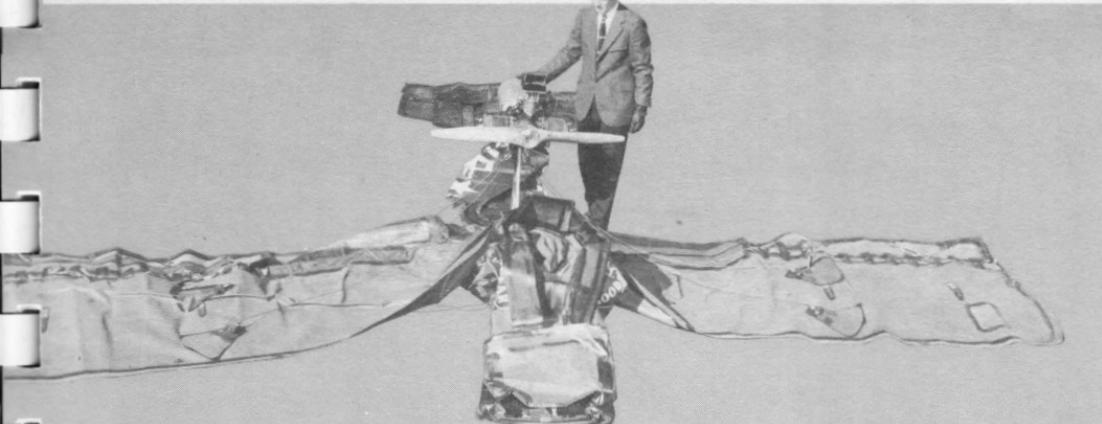


*Optimum Packaging
and
Ease of Handling*



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Fabricated of light-weight, durable nylon and dacron, the entire INFLATOPLANE structure may literally be folded into an optimum package (32 cu ft for the one-place and 44 cu ft for the two-place) for storage, transport, or "paradrop." Though light weight, this fabric is extremely durable - defying damage after extensive field handling and repeated inflation and deflation. Its double-bias cover ply construction restricts and/or localizes virtually any puncture, thus, INFLATOPLANES are tear resistant. Easy to handle? Package-to-airborne time is only 5 min.



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Seaplane Operations



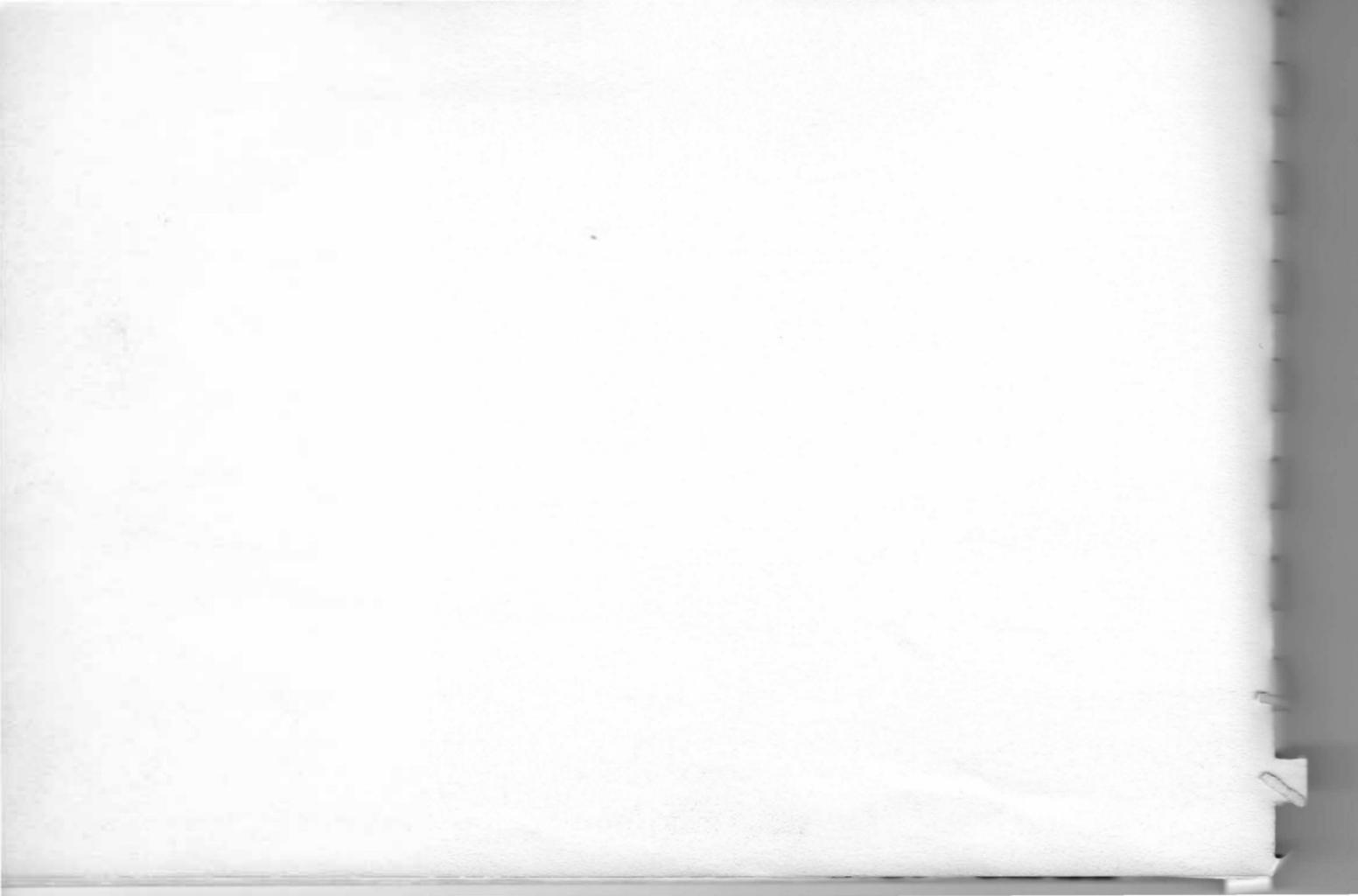
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A combination wheel and ski landing gear permits the INFLATOPLANE to operate from land or water with equal facility. The ski is sectionalized and thus compatible with the other components for ease of packaging. No difficulty is envisioned for operation on ice, snow, mud, or rough terrain.

In a sea rescue operation involving a "paradrop," it is entirely possible that the INFLATOPLANE could be inflated during descent and ready for flight upon contact with the water.



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Inherent Buoyancy



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As is evidenced here, the INFLATOPLANE is an extremely buoyant structure. It can support an overload of several hundred pounds and still retain its seaworthiness. Consequently, if ever "dunking" were necessitated, the INFLATOPLANE could remain afloat for some time, and thereby assure the safety of all personnel on board.



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Typical Land Rescue



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With all due respect to the famous survival kit (machete, K-rations, 45-cal bird shot, etc.), Goodyear Aircraft is convinced that a "downed" pilot would prefer, instead, a vehicle in which he could fly himself to safety. This can be done without exposure of rescue personnel. That is, packaged in a cylindrical wing pod and dropped from a wing rack, or in a crate and shoved out the cargo hatch, a completely equipped INF LATOPLANE can be "paradropped" to a stranded pilot, who, in effect, can then rescue himself.



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Amphibious Rescue Operations

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An amphibian by any definition, the INFLATOPLANE can take off or land in a variety of unimproved areas; swampy, mountainous, heavily wooded, or what have you. A short narrow clearing - a river, a lake, a valley, or a field - is home base to an INFLATOPLANE. On a sod runway the one-place INFLATOPLANE takes off with about 300 ft of ground run, and lands within 350 ft (no brakes, at 0-wind velocity). The two-place INFLATOPLANE requires a 450-ft ground run. Pay load (exclusive of fuel) for the one- and two-place, respectively, is 240 and 400 lb.



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Two Place Inflatoplane



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Like its smaller sister-aircraft, the two-place INFLATOPLANE may be dropped from the wing racks or cargo hatches of an airplane. It is 19.2-ft long, has a 28-ft wing span, and weighs 290 lb. Supplied by a 20-gal fuel tank, a 65-hp engine powers it: at a cruise speed of 70 mph, at a maximum speed of 80 mph, to a service ceiling of 16,000 ft. This aircraft can stay in flight 2.5 hr without refueling. Its in-flight inflation characteristics compare to its one-place companion with a single exception - maximum air pressure is 1 psi more, or 8 psi.



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Airborne Operation



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In an airborne operation, where cargo space is of the essence, the INFLATOPLANE can prove invaluable. It can be "paradropped" in the same manner as any other airborne equipment and be operationally available during the first phase of an airborne attack. It provides the paratrooper with organic equipment he can use for liaison, reconnaissance, fire direction, and observation.



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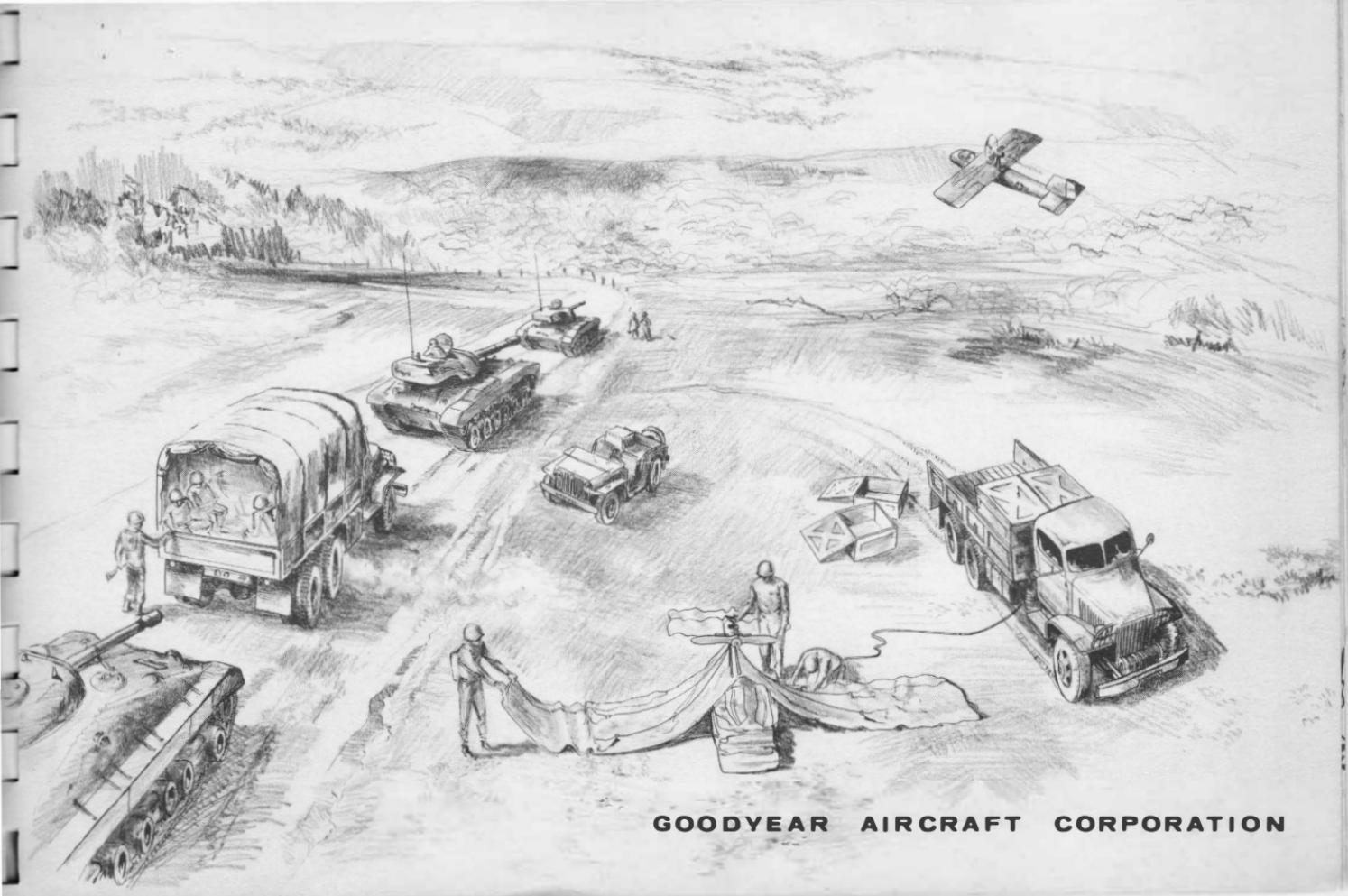


Aerial Route Reconnaissance

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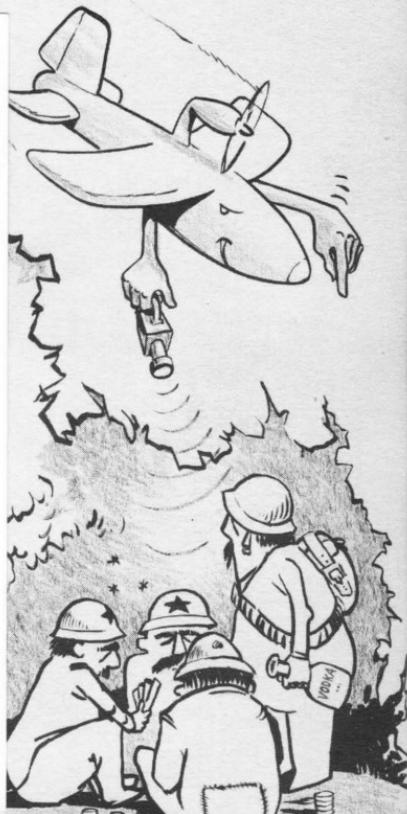
The compact packaging and light weight of the INFLATOPLANE are conducive to all field operations. That is, the package can be transported (in a truck or jeep trailer) and handled with ease. Any ground unit, a line outfit in particular, can employ the INFLATOPLANE to good advantage. For example, a convoy or tank column, or even more ideally, a recon company, could have aerial reconnaissance with it at all times, suffering no sacrifice in maneuverability. In approximately 5 min after an order to "take it up," the INFLATOPLANE can be airborne.



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Inflatable Drones



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Inflatable drones, like the INFLATOPLANES, have optimum packaging and easy ground handling characteristics. Silently,* and with no visible back blast, the inflatable drone can be launched to reconnoiter, to observe and to telecast information back to its base.

In addition to the conventional parachute recovery, other suggested methods include an arresting hook and net or a water landing.

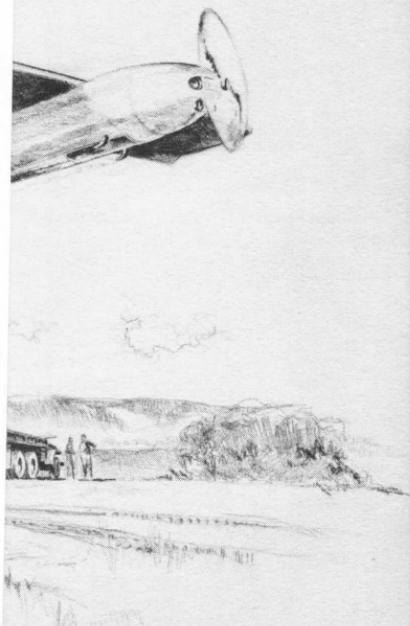
*The inflatable drone needs no rockets for launching.



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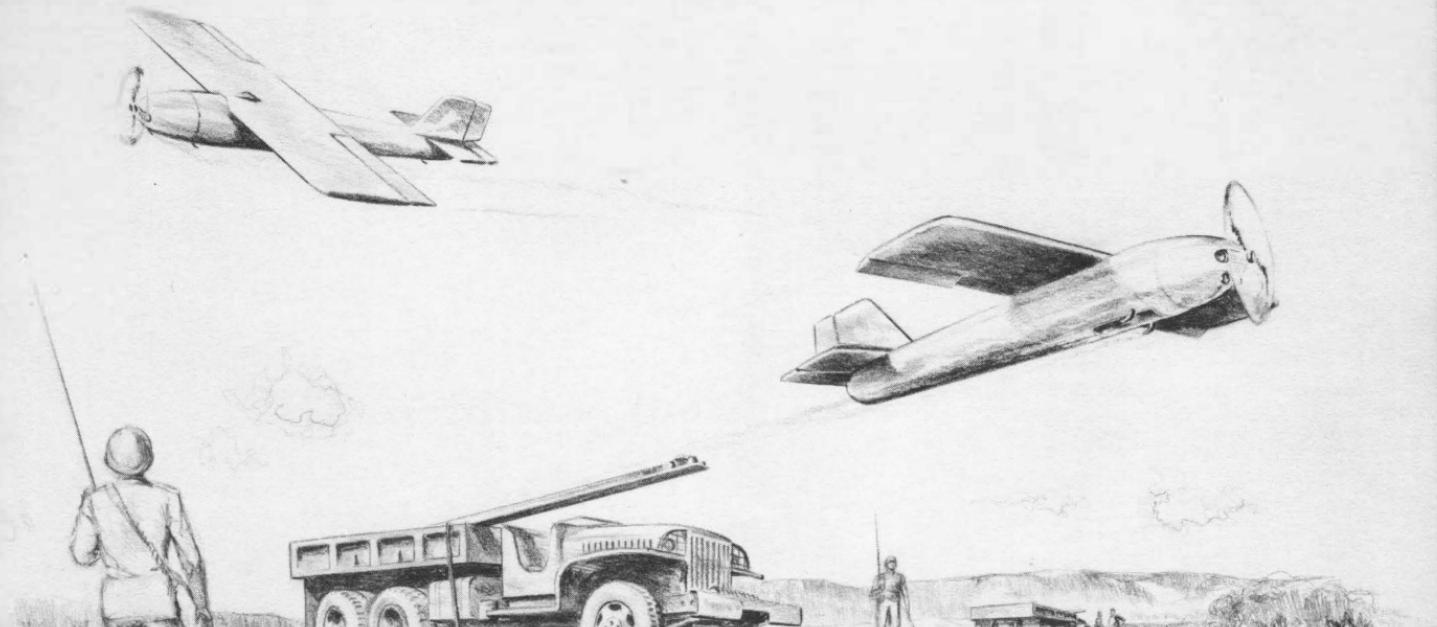
Drone Launching



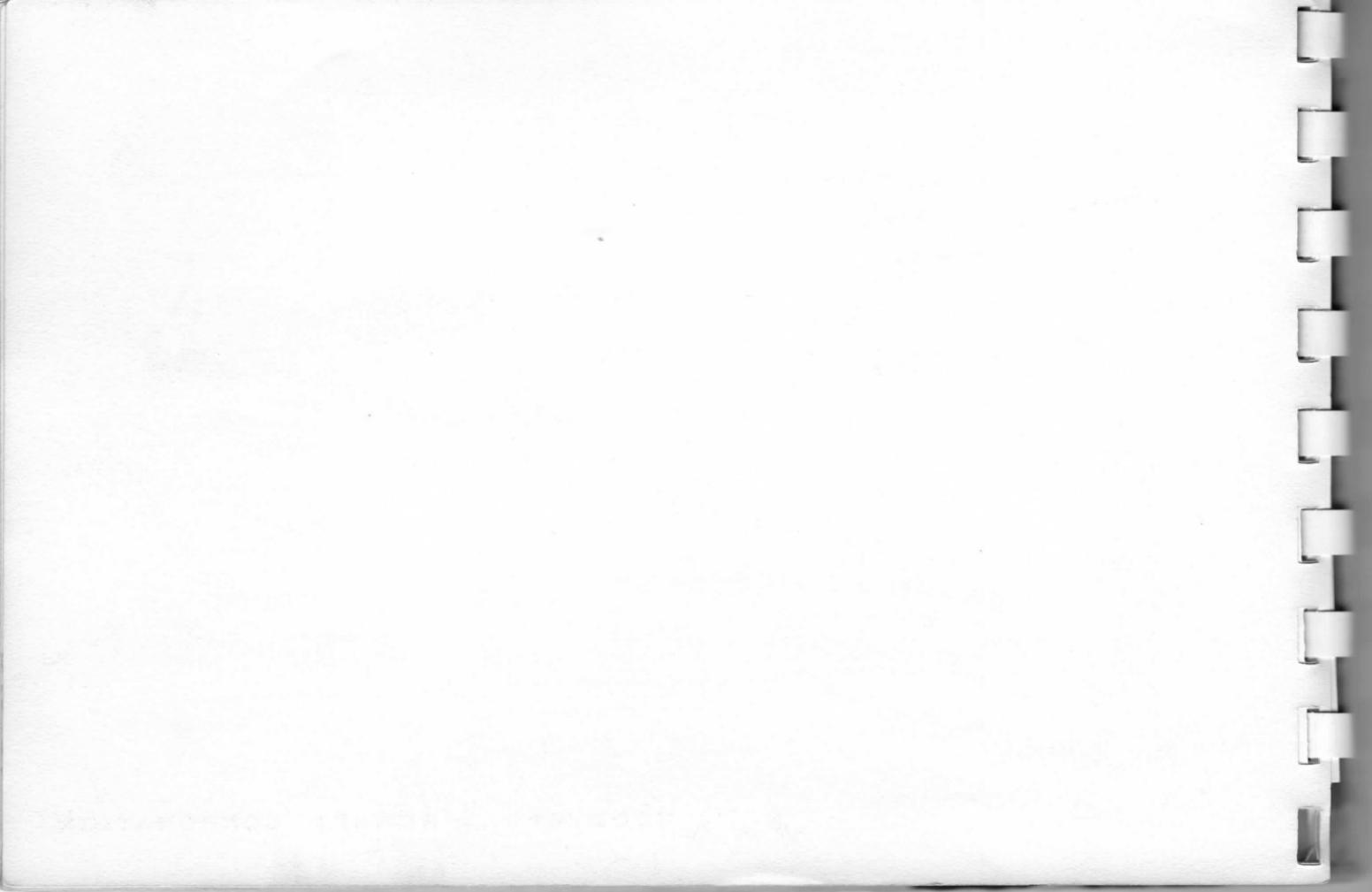
GOODYEAR AIRCRAFT CORPORATION

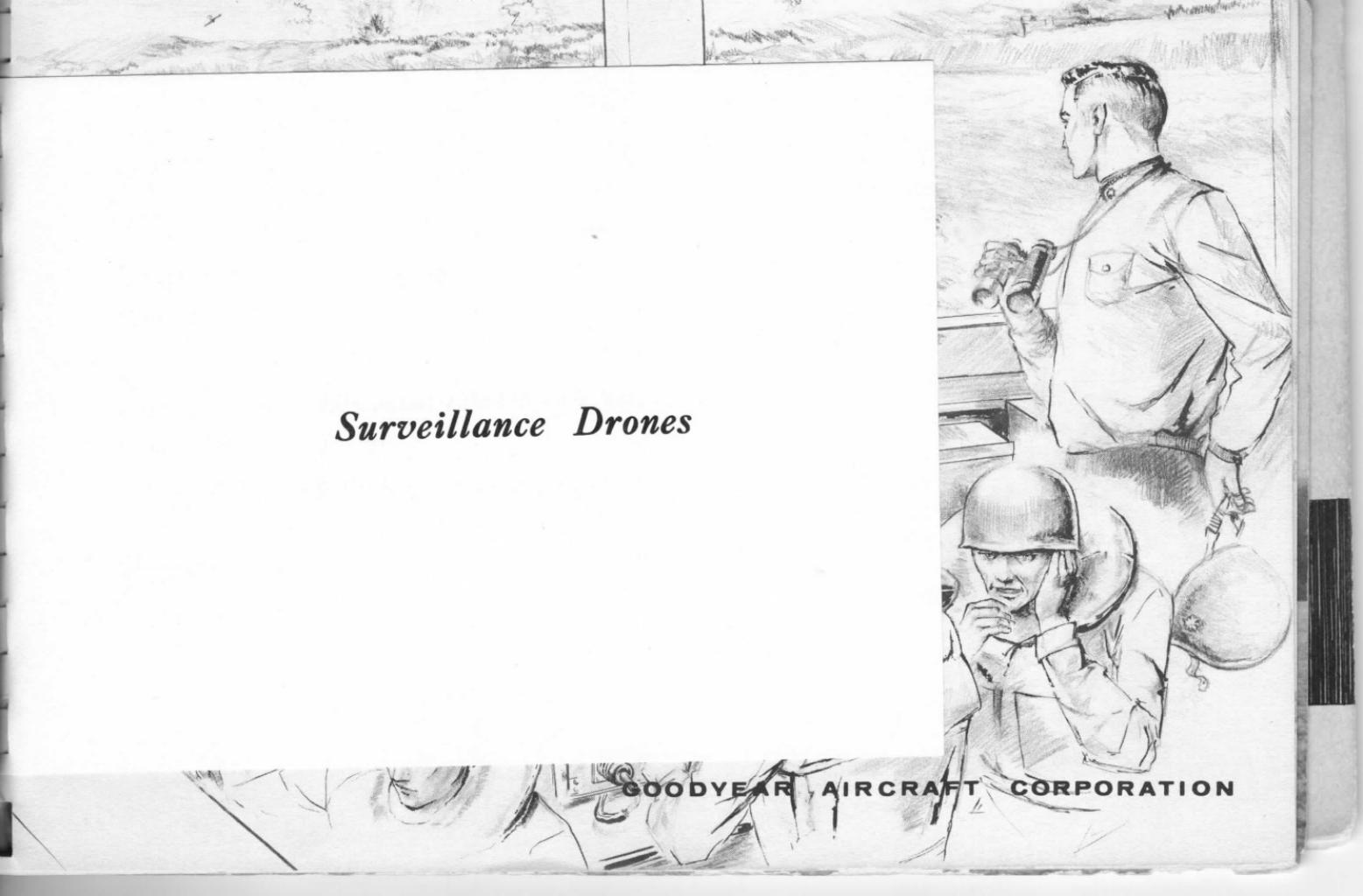
The inflatable drone, because of its light weight and slow-speed flight characteristics, can be launched from a truck-mounted launcher. The launcher is designed with an elastic shock cord as an energy source and does not require an expendable cartridge as do rocket launchers. The drone can be launched in sling-slot fashion.

The launcher is approximately 20-ft long when ready for launching and may be folded for ease of transport.



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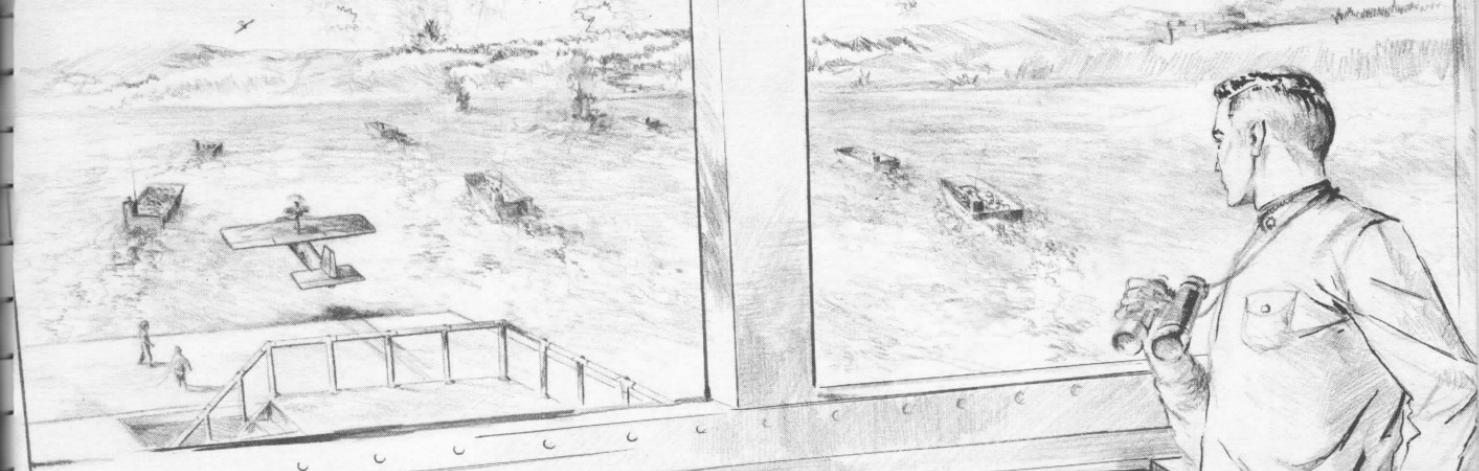
Surveillance Drones



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An amphibious landing operation presents one situation where inflatable drones can provide continuous visual surveillance.

Requiring only a minimum launching distance, they can be launched from ships to fly over a beach-head and adjacent inland areas. Information is telecast back to the command ships, or others, where any number of observers can view the landing operations.



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*Tactical Employment
Through
Vertical Envelopment*

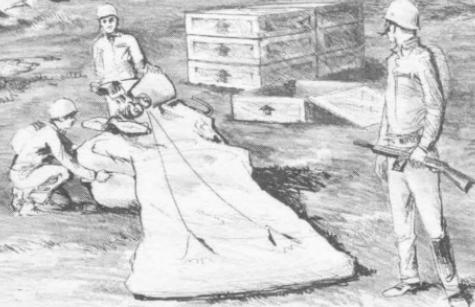


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Tactical employment through vertical envelopment by helicopter has many advantages. For example, in an amphibious mission, personnel can be transported beyond the beach to establish tactical operations inland.

This concept, with present equipment, enables small flexible units to be relatively self supporting. With the incorporation of the INFLATOPLANE, however, they can have complete independence; be free to move miles in minutes.

The INFLATOPLANE, with its combination wheel and ski landing gear, operating from unprepared areas can perform such missions as observation, fire control, liaison, and reconnaissance.



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INFLATOPLANE DATA

Item	One-Place	Two-Place *	Item	One-Place	Two-Place *
Wing span	22 ft	28 ft	Gross weight	530 lb §	814 lb
Wing area	110 ft ²	154 ft ²	Endurance	6.5 hr	2.5 hr
Airfoil	NACA 0015	NACA 0018	Stall velocity	41 mph	46 mph
Over-all length	19.7 ft	19.2 ft	Take-off velocity	44 mph	50 mph
Engine	42-hp Nelson	65-hp McCulloch	Cruise velocity	60 mph "	70 mph
Compressor	27 cfm Pesco	27 cfm Pesco	Maximum velocity	72 mph	80 mph
Inflation pressure	7 psi	8 psi	Take-off (on sod)	300 ft	450 ft
Inflation time (package to airborne)	5 min †	6 min	Clear 50-ft obstacle	600 ft ¶	780 ft
Empty weight	205 lb	290 lb	Landing (on sod)	350 ft	¶
Personnel	200 lb ‡	400 lb	Rate of climb (sea level)	650 fpm	700 fpm
Fuel, 20 gal	124 lb	124 lb	Service ceiling	9000 ft †	16,000 ft

* All data pertaining to the two-place INFLATOPLANE are estimated.

† Estimated.

‡ Arbitrary cruise velocity.

‡ 240-lb maximum.

¶ With gross weight reduced to 490 lb.

§ 550-lb maximum.

¤ Not estimated.





